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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/494,945	02/01/2003	Tadahiro Ohmi	862.G1811	4149

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

FLORES RUIZ, DELMA R

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 03/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/494,945

Applicant(s)

OHMI ET AL.

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/7/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 - 53, 55, 57 - 66 and 109 - 110 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 4 - 53, 55, 57 - 66 and 109 - 110 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.

- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)

- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

- 5) ☐ Notice of Informal Patent Application (PTO-152)

- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1 – 11, 14 – 25, 27 – 53, 57 – 60, and 63 – 66, which has a common assignee and three inventors with the instant application.

Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e), if patented. This provisional rejection under 35 U.S.C. 102(e) is based upon a presumption of future patenting of the copending application.

This provisional rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

This rejection may not be overcome by the filing of a terminal disclaimer. See *In re Bartfeld*, 925 F.2d 1450, 17 USPQ2d 1885 (Fed. Cir. 1991).

Regarding claims 4, 19, 53, 55, 58 – 62, 64, and 109, 110 Ohmi et al discloses a laser oscillating apparatus for generating a laser beam comprising: a laser tube (Fig. 8A, Character 2) which is filled with laser gas; and a waveguide which has a plurality of slots (Figs. 9A, 9B, and 9C, Column 12, lines 22 – 30) formed in a waveguide wall, and introduced electromagnetic waves (Column 12, lines 22 – 30) into said laser tube (Fig. 8A, Character 2) through said slot, wherein said slot are spaced apart from a wall of said laser tube by a predetermined distance and an electromagnetic wave passage is formed in a portion spacing said slot apart from said laser tube and connects said slots apart from said laser tube such that electromagnetic waves introduced from said plurality of slot can overlap with each other (Fig. 8A, 9A-C). The slots comprises a

plurality of rows of slits, and the width of each slit is made smaller than the thickness of a sheath serving as a passage of said electromagnetic wave. Uniformizing means is formed such that a pair of waveguides are formed to sandwich said laser tube such that formation surface of said slots oppose each other, identical electromagnetic wave are supplied to said pair of waveguides to excite a laser gas in two opposite directions on said laser tube, and said pair of waveguides are constructed such that intensity distributions of electromagnetic wave introduced therefrom are shifted from said other. The formation surface of said slots are short end faces of said waveguide, and said slots are formed in a line at equal intervals in a longitudinal direction said slots and the waveguide are arranged such that slots corresponding to a predetermined distance shifts each other between the opposing formation surfaces relative to each other. A phase adjusting means for shifting phases of electromagnetic wave supplied into said waveguide relative to each other. Waveguides comprises tuning means for tuning an electromagnetic wave (Figs. 3A-C, 4A-B, 8A, 9A-C, 11A – 14, 16A, 17A – 23A, Column 13, lines 30 – 35, 62 – 67, Column 14, lines 1 – 5, Column 19, lines 15 – 20, and Column 16, lines 5 – 13, 19 – 23).

Regarding claims 5, 6, 14, 40, and 65, Ohmi discloses the distance from said slots to said laser tube wall is an integral multiple of the half-wave length of an electromagnetic wave introduced from said waveguide, an waveguide electromagnetic

wave introduced from said waveguide is a microwave (Figs 6A, 6B, Abstract, and Column 12, lines 22 – 30)

Regarding claims 7, 8, 9, 12 – 13, and 17, Ohmi discloses a passage is made from a conductor, and at least a portion where said passage is in contact with said laser tube, said passage forms an air gap having an opening with a predetermined width over the length of said laser and air gap is filled with a dielectric member (Column 13, lines 47 – 61, and Column 17, lines 23 – 30).

Regarding claim 10, 11, and 25 Ohmi discloses a dielectric member comprises a plurality of dielectric member having different dielectric constants and the width of said air gap is an integral multiple of the half-wave length of an electromagnetic wave introduced from said waveguide and uniformizing means is formed such that an air gap structure is formed in said waveguide wall in which said slots are formed (Figs. 5, 6A and 6B, Column 12, lines 22 – 30, Column 13, lines 1 – 4).

Regarding claim 15 Ohmi discloses a width of said wide portion changes along a longitudinal direction of said air gap on the basis of an intensity distribution of electromagnetic waves emitted from said slot (Column 13, lines 30 – 35).

Regarding claims 16, Ohmi discloses a dielectric lenses each having a curved shape corresponding to said slot are formed in said passage in at least a portion above said plurality of slot (Figs 9A-C, 16A).

Regarding claims 18, 21, 24, 30, 34, 36, 41, 49, 52, 57, and 66 Ohmi discloses a laser gas id one of at least one inert gas selected from the group consisting of Kr, Ar, He and Ne and a gas mixture of said inert gas and F₂ gas (Abstract, Column 1, lines 21 – 27 and Column 3, lines 17 – 24).

Regarding claim 20, and 28 Ohmi discloses an end portions have circular shapes with a diameter larger than the width of said central portion and air gap structure in a central portion of said slot is made smaller than an air gap portion near end portions of said slot (Figs. 2, 11B).

Regarding claims 22, 23, 35 and 37 – 39, Ohmi discloses uniformizing means is formed such that said slot are formed apart from a central axis along a longitudinal direction of said wavelength and each of said slots is curved such that end portion are closer to the central axis than a central portion, the electromagnetic wave is radiated from said waveguide in the direction off a long end face of said waveguide and uniformizing means is formed such that width of end portions in a longitudinal direction of said slot is made smaller than the width of a central portion thereof. The uniformizing

means is formed such that said slot formed in a portion where an emission characteristic of an electromagnetic wave depending on said slot in contrary to an intensity distribution of an electromagnetic wave propagating in said waveguide. The slot is formed such that a minimum value of an intensity distribution of an electromagnetic wave propagating in said waveguide is in substantially the center of said slot and slot are formed in a line at a pitch equal to one of the wavelength and the half-wave length of an electromagnetic wave in said waveguide (Figs 6A, 6B. 8A, 11A 12 A, Column 12, lines 1 – 6, Column 13, lines 30 – 35).

Regarding claims 26 – 27, and 29 Ohmi discloses the air gap structure includes an air gap portion formed near end portions of said within a range from said end portions to a distance and air gap structure is formed with a width equal to an integral multiple of $\lambda_g/2$ (λ_g is the waveguide of said electromagnetic wave) (Figs. 6A, and 6B, Column 12, lines 1 – 6).

Regarding claim 31, and 32 Ohmi discloses a uniformizing means is formed such that each of said plurality of slots comprises collecting means for efficiently guiding said electromagnetic wave to said slot and collecting means comprises a slot having a tapered shape whose sectional shape narrows toward said laser tube (Figs. 9A, 9B, and 9C, Column 12, lines 22 – 30).

Regarding claim 33, Ohmi discloses a collecting means comprises a dielectric lens formed with respect to said slot (Fig. 16A and 17A).

Regarding claims 42 – 48, Ohmi discloses uniformizing means comprises a shielding structure against said electromagnetic wave in said laser tube in order to prevent said plasma excited above said slots from diffusing from a predetermined region. The shielding structure comprises a metal wall spaced apart from said slot by a predetermined distance, the shielding structure is made from a mesh-like plate member, and shielding structure comprises a plurality of nozzle structure having predetermined opening and nozzle is a passage of said laser gas. The shielding structure is formed by a magnetic field (Column 14, lines 23 – 42).

Regarding claims 50, and 51 Ohmi discloses a uniforminzing means is formed such that the with in a short-side direction of said slot is made smaller that the thickness of a sheath serving as a passage of said electromagnetic wave extending from an opening of said slot in said short-side direction, and the width in said short-side direction in 10 – 100 μm (Column 2, lines 56 – 62, Column 12, lines 22 - 30).

Response to Arguments

Applicant's arguments filed 12 / 12 /2000 and 1/07/2003 have been fully considered but they are not persuasive. See rejection of claims 4 – 53, 55, 57 – 66 and 109 - 110 above.

Applicant argues that the prior art fails to disclose any of the features of the present invention recited in the independent claims. The examiner disagrees in view of the rejection presented above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

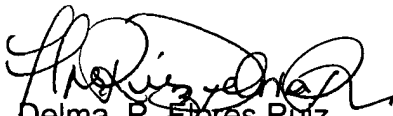
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (703) 308-6238. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.



Delma R. Flores Ruiz
Examiner
Art Unit 2828



Paul Ip
Supervisor Patent Examiner
Art Unit 2828

DRFR/PI
March 20, 2003